TMR-RF815R

SERVICE MANUAL

AEP Model
UK Model

Ver 1.0 2000. 06

TMR-RF815R is the component model block one in the MDR-RF815RK.

COMPONENT MODEL NAME FOR MDR-RF815RK

Headphones	MDR-RF815R
Transmitter	TMR-RF815R

SPECIFICATIONS

General

Carrier frequency
863.5 – 864.5 MHz
Channel Ch1, Ch2, Ch3
Modulation FM stereo
Frequency response
20 – 20,000 Hz

Transmitter

Power source DC 9 V: supplied AC power adaptor
Audio input phono jacks/stereo mini jack
Dimensions Approx. 150 mm dia × 108 mm ($6 \times 4\ ^1/_3$ in.) (w/h)
Mass Approx. 190 g (6.2 oz.)

Design and specifications are subject to change without notice.

TRANSMITTER

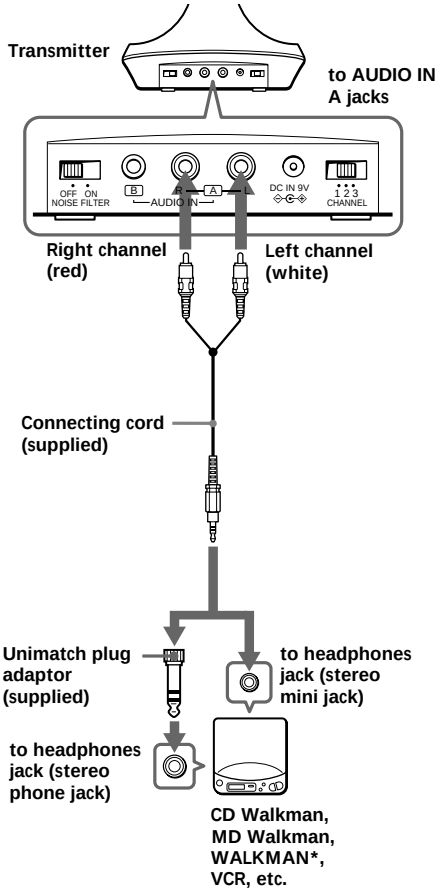
SONY®

This section is extracted from instruction manual.

Setting up the transmitter

1 Connect the transmitter to audio / video equipment. Select one of the hookups below depending on the jack type:

Ⓐ To connect to a headphones jack



SAFETY CHECK-OUT

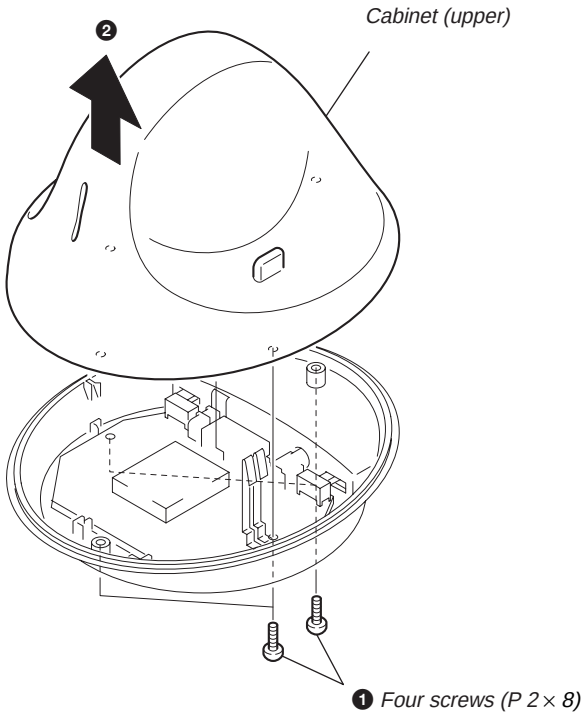
After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering

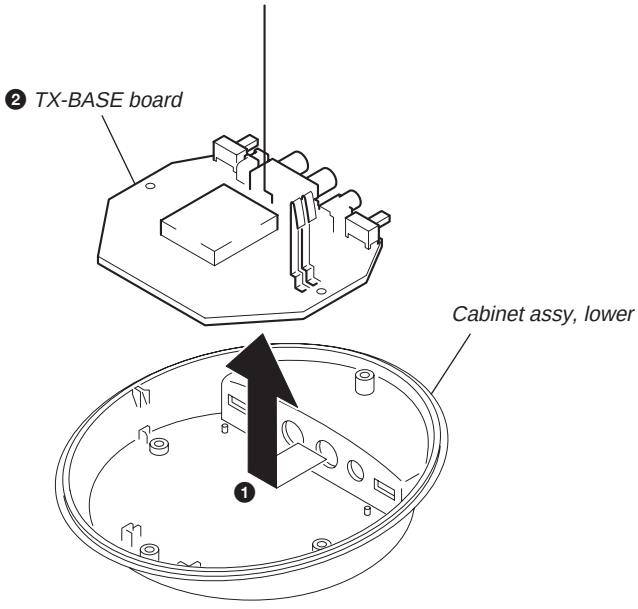
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

2-1. CABINET (UPPER)

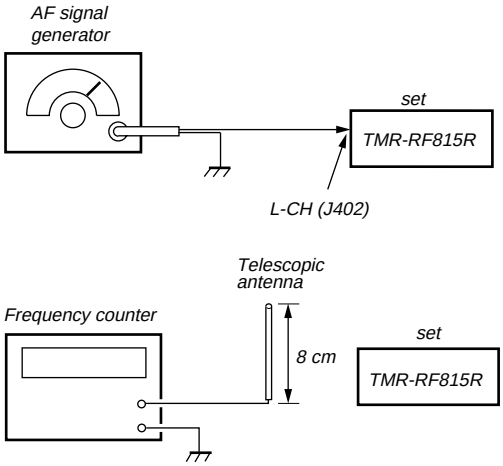


2-2. TX-BASE BOARD



SECTION 3
ELECTRICAL ADJUSTMENTS

Setting :



Send Frequency Check

1. Set the noise filter SW to OFF.
2. Input a signal of 1 kHz 40 mVrms to only the L-CH (J402).
3. Connect a telescopic antenna to the frequency counter input and extend the antenna to a length of approximately 8 cm.
4. Place TX-BASE board close to the frequency counter, then measure the frequencies of CH1, CH2 and CH3 and make sure the values are as follows:
   CH1 : 863.5 MHz ± 40 kHz
   CH2 : 864.0 MHz ± 40 kHz
   CH3 : 864.5 MHz ± 40 kHz

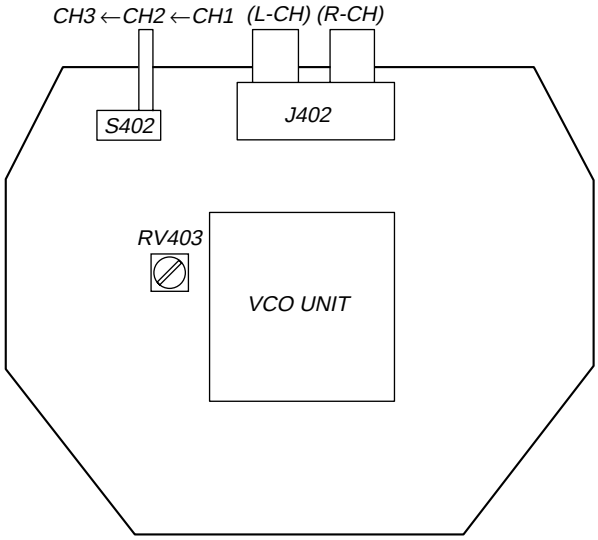
   When the frequency is not satisfied the specified value, exchange vco unit. When completed with replacement, recheck the frequecies of CH1, CH2 and CH3.

Pilot signal Modulation Check and Adjustment

1. Set the channel to CH2.
2. No signal input (The operating time in this case is limited to 4 or 5 minutes.)
3. Measure the movable terminal of RV403 using an digital voltmeter (AC range) and make sure the value is 1.6mVrms ± 0.1mV. If the measured value is other than the specified value, adjust to 1.6mVrms ± 0.1mV by turning the RV403 on the TX-BASE board.

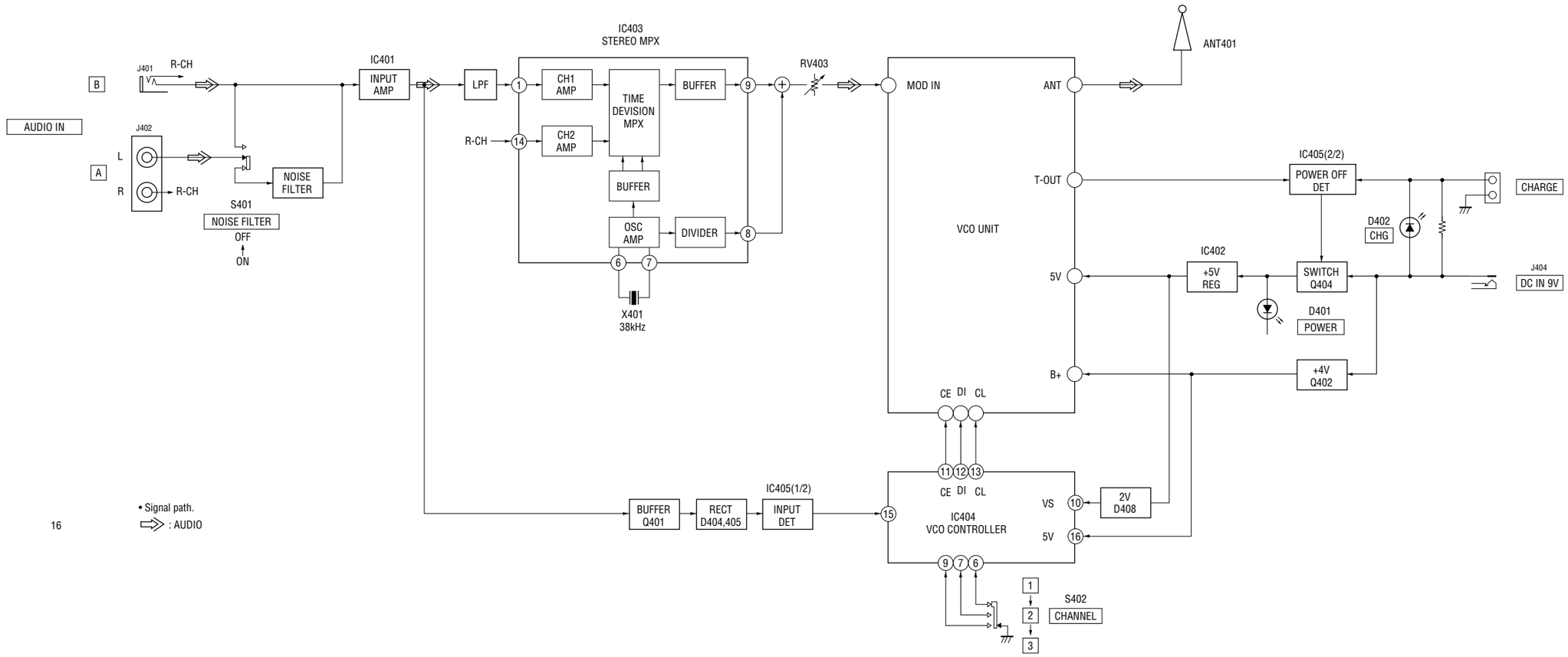
Connection points and Adjustment Location :

[TK-BASE BOARD] (Component side)



SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM

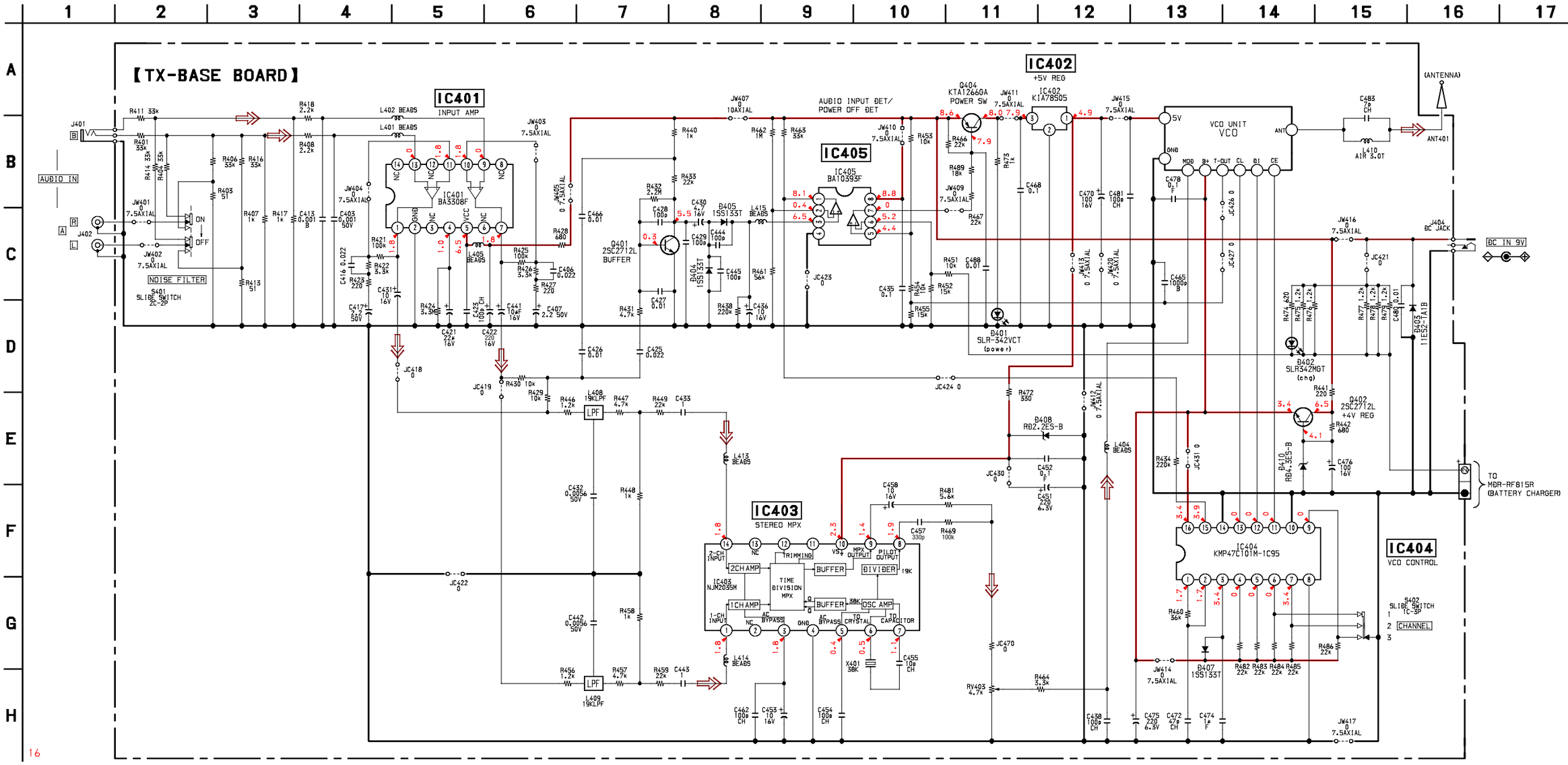


• Signal path.
⇨ : AUDIO

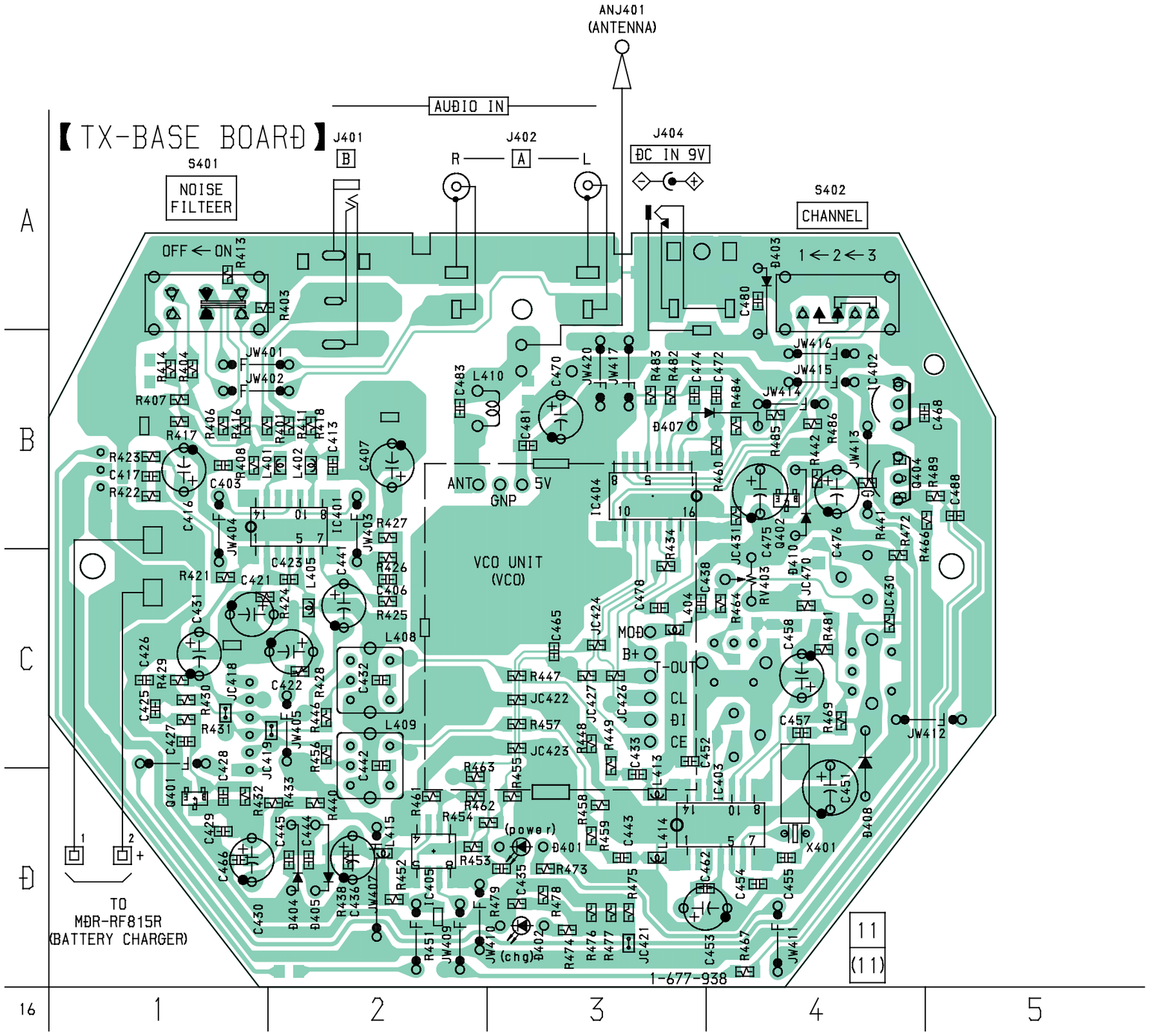
Note on Printed Wiring Board:
- ○——— : parts extracted from the component side.
- ▒▒▒▒ : Pattern from the side which enables seeing.

Note on Schematic Diagram:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltages are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : AUDIO

4-2. SCHEMATIC DIAGRAM



4-3. PRINTED WIRING BOARD



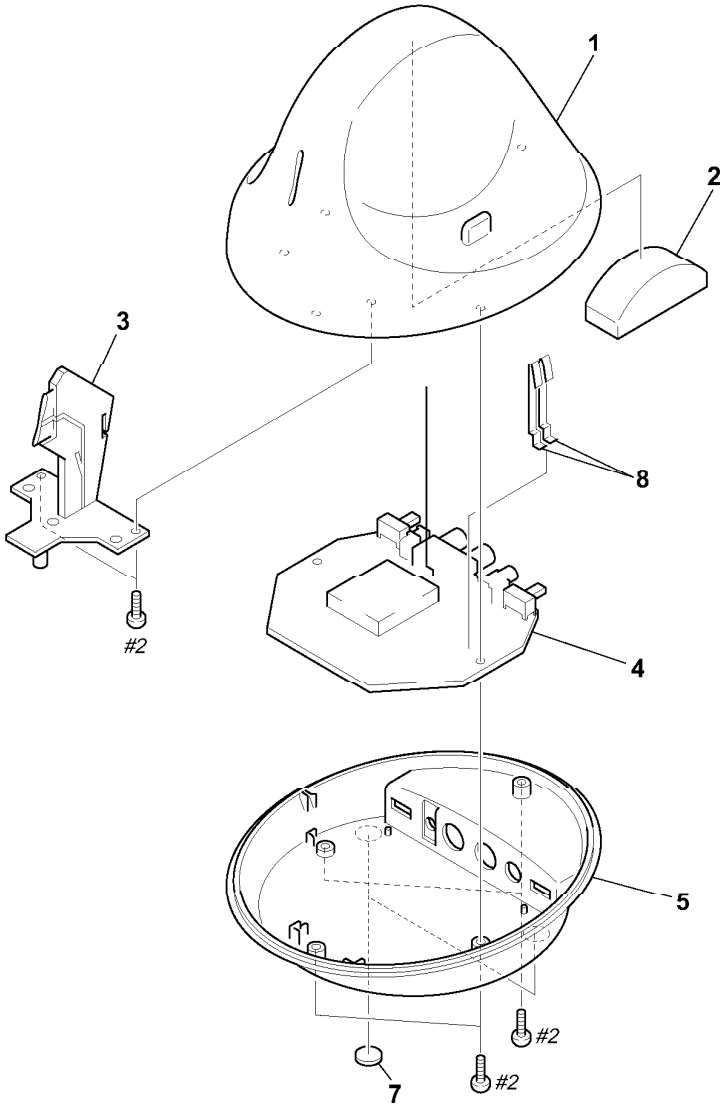
• **Semiconductor Location**

Ref. No.	Location
D401	D-3
D402	D-3
D403	A-4
D404	D-2
D405	D-2
D407	B-3
D408	D-4
D410	B-4
IC401	B-2
IC402	B-4
IC403	D-4
IC404	B-3
IC405	D-2
Q401	D-1
Q402	B-4
Q404	B-4

SECTION 5
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of this parts list.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts of Color Cabinet's Color



Ref. No.	Part No.	Description	Remarks
1	3-046-687-11	CABINET (UPPER) (BLACK)	
1	3-046-687-21	CABINET (UPPER) (WHITE)	
2	3-049-800-01	CUSHION, ANTENNA	
3	3-046-690-01	TUBE, LIGHT GUIDE	
* 4	A-4542-645-A	TX-BASE BOARD, COMPLETE	
5	X-3379-433-1	CABINET ASSY, LOWER (WHITE)	
5	X-3379-660-1	CABINET ASSY, LOWER (BLACK)	
7	4-984-729-01	FOOT, RUBBER	
8	3-046-689-01	TERMINAL, CHARGE	
#2	7-685-105-19	SCREW +P2X8 TYPE2 NON-SLIT	

TX-BASE

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH

- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description			Remarks
*	A-4542-645-A	TX-BASE BOARD, COMPLETE			
		**********			
*	A-4542-646-A	TX-VCO UNIT (VCO)			
		< ANTENNA >			
ANT401	4-213-164-01	TERMINAL, ANTENNA			
		< CAPACITOR >			
C403	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C406	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C407	1-126-961-11	ELECT	2.2uF	20.00%	50V
C413	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C416	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C417	1-126-961-11	ELECT	2.2uF	20.00%	50V
C421	1-124-234-00	ELECT	22uF	20%	16V
C422	1-126-934-11	ELECT	220uF	20.00%	16V
C423	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C425	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C426	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C427	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C428	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C429	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C430	1-124-259-11	ELECT	4.7uF	20.00%	16V
C431	1-126-157-11	ELECT	10uF	20%	16V
C432	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C433	1-164-346-11	CERAMIC CHIP	1uF		16V
C435	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C436	1-126-157-11	ELECT	10uF	20%	16V
C438	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C441	1-126-157-11	ELECT	10uF	20%	16V
C442	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C443	1-164-346-11	CERAMIC CHIP	1uF		16V
C444	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C445	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C451	1-124-635-00	ELECT	220uF	20.00%	6.3V
C452	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C453	1-126-157-11	ELECT	10uF	20%	16V
C454	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C455	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C457	1-163-003-11	CERAMIC CHIP	330P		50V
C458	1-126-157-11	ELECT	10uF	20%	16V
C462	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C465	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C466	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C468	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C470	1-126-382-11	ELECT	100uF	20.00%	16V
C472	1-163-243-11	CERAMIC CHIP	47PF	5.00%	50V

Ref. No.	Part No.	Description			Remarks
C475	1-124-635-00	ELECT	220uF	20.00%	6.3V
C476	1-126-382-11	ELECT	100uF	20.00%	16V
C478	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C480	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
C481	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C483	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C488	1-163-021-91	CERAMIC CHIP	0.01uF	10.00%	50V
		< DIODE >			
D401	8-719-059-98	LED SLR-342VC3F (power)			
D402	8-719-048-87	LED SLR-332MGF03 (chg)			
D403	8-719-200-82	DIODE 1ES2			
D404	8-719-991-33	DIODE 1SS133T-77			
D405	8-719-991-33	DIODE 1SS133T-77			
D407	8-719-991-33	DIODE 1SS133T-77			
D408	8-719-109-54	DIODE RD2.2ES-B2			
D410	8-719-982-11	DIODE MTZJ-4.3B			
		< IC >			
IC401	8-759-998-71	IC BA3308F			
IC402	8-759-537-90	IC KIA78S05P-TP			
IC403	8-759-667-59	IC NJM2035M(TE2)			
IC404	8-759-679-76	IC KMP47C101M-1B54			
IC405	8-759-510-73	IC BA10393F-E2			
		< JACK >			
J401	1-566-822-21	JACK (B)			
J402	1-580-441-61	JACK, PIN 2P (A)			
J404	1-785-066-11	JACK,DC(POLARITY UNIFIED TYPE)(DC IN 9V)			
		< JUMPER >			
JC418	1-216-295-91	SHORT	0		
JC419	1-216-295-91	SHORT	0		
JC421	1-216-295-91	SHORT	0		
JC422	1-216-296-91	SHORT	0		
JC423	1-216-296-91	SHORT	0		
JC424	1-216-296-91	SHORT	0		
JC426	1-216-296-91	SHORT	0		
JC427	1-216-295-91	SHORT	0		
JC430	1-216-295-91	SHORT	0		
JC431	1-216-295-91	SHORT	0		
JC470	1-216-295-91	SHORT	0		
		< COIL >			
L401	1-414-234-11	INDUCTOR CHIP	0uH		
L402	1-414-234-11	INDUCTOR CHIP	0uH		
L404	1-414-234-11	INDUCTOR CHIP	0uH		
L405	1-414-234-11	INDUCTOR CHIP	0uH		

Ref. No.	Part No.	Description			Remarks
L409	1-419-079-21	COIL (MPX FILTER)			
L410	1-419-662-31	COIL, AIR-CORE			
L413	1-414-234-11	INDUCTOR CHIP	0uH		
L414	1-414-234-11	INDUCTOR CHIP	0uH		
L415	1-414-234-11	INDUCTOR CHIP	0uH		
		< TRANSISTOR >			
Q401	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q402	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q404	8-729-045-00	TRANSISTOR	KTA1266GR-AT		
		< RESISTOR >			
R401	1-216-085-00	METAL CHIP	33K	5%	1/10W
R403	1-216-018-00	METAL CHIP	51	5%	1/10W
R404	1-216-085-00	METAL CHIP	33K	5%	1/10W
R406	1-216-085-00	METAL CHIP	33K	5%	1/10W
R407	1-216-049-91	RES-CHIP	1K	5%	1/10W
R408	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R411	1-216-085-00	METAL CHIP	33K	5%	1/10W
R413	1-216-018-00	METAL CHIP	51	5%	1/10W
R414	1-216-085-00	METAL CHIP	33K	5%	1/10W
R416	1-216-085-00	METAL CHIP	33K	5%	1/10W
R417	1-216-049-91	RES-CHIP	1K	5%	1/10W
R418	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R421	1-216-097-91	RES-CHIP	100K	5%	1/10W
R422	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R423	1-216-033-00	METAL CHIP	220	5%	1/10W
R424	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R425	1-216-097-91	RES-CHIP	100K	5%	1/10W
R426	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R427	1-216-033-00	METAL CHIP	220	5%	1/10W
R428	1-216-045-00	METAL CHIP	680	5%	1/10W
R429	1-216-073-00	METAL CHIP	10K	5%	1/10W
R430	1-216-073-00	METAL CHIP	10K	5%	1/10W
R431	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R432	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R433	1-216-081-00	METAL CHIP	22K	5%	1/10W
R434	1-216-105-91	RES-CHIP	220K	5%	1/10W
R438	1-216-105-91	RES-CHIP	220K	5%	1/10W
R440	1-216-049-91	RES-CHIP	1K	5%	1/10W
R441	1-216-033-00	METAL CHIP	220	5%	1/10W
R442	1-216-045-00	METAL CHIP	680	5%	1/10W
R446	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R447	1-216-214-00	RES-CHIP	4.7K	5%	1/8W
R448	1-216-049-91	RES-CHIP	1K	5%	1/10W
R449	1-216-081-00	METAL CHIP	22K	5%	1/10W
R451	1-216-073-00	METAL CHIP	10K	5%	1/10W
R452	1-216-077-00	RES-CHIP	15K	5%	1/10W
R453	1-216-073-00	METAL CHIP	10K	5%	1/10W
R454	1-216-073-00	METAL CHIP	10K	5%	1/10W
R455	1-216-077-00	RES-CHIP	15K	5%	1/10W
R456	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R457	1-216-214-00	RES-CHIP	4.7K	5%	1/8W
R458	1-216-049-91	RES-CHIP	1K	5%	1/10W
R459	1-216-081-00	METAL CHIP	22K	5%	1/10W
R460	1-216-086-00	RES-CHIP	36K	5%	1/10W
R461	1-216-091-00	METAL CHIP	56K	5%	1/10W
R462	1-216-121-91	RES-CHIP	1M	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R463	1-216-085-00	METAL CHIP	33K	5%	1/10W
R464	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R466	1-216-081-00	METAL CHIP	22K	5%	1/10W
R467	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R469	1-216-097-11	METAL CHIP	100K	0.5%	1/10W
R472	1-216-186-00	RES-CHIP	330	5%	1/8W
R473	1-216-049-91	RES-CHIP	1K	5%	1/10W
R474	1-216-044-00	METAL CHIP	620	5%	1/10W
R475	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R476	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R477	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R478	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R479	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R481	1-216-067-11	METAL CHIP	5.6K	5%	1/10W
R482	1-216-081-00	METAL CHIP	22K	5%	1/10W
R483	1-216-081-00	METAL CHIP	22K	5%	1/10W
R484	1-216-081-00	METAL CHIP	22K	5%	1/10W
R485	1-216-081-00	METAL CHIP	22K	5%	1/10W
R486	1-216-081-00	METAL CHIP	22K	5%	1/10W
R489	1-216-079-91	METAL CHIP	18K	5%	1/10W
		< VARIABLE RESISTOR >			
RV403	1-241-763-11	RES, ADJ, CARBON 4.7K			
		< SWITCH >			
S401	1-771-961-11	SWITCH, SLIDE (NOISE FILTER)			
S402	1-771-962-11	SWITCH, SLIDE (CHANNEL)			
		< VIBRATOR >			
X401	1-781-850-11	VIBRATOR, CRYSTAL 38kHz			

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9-927-955-11

Sony Corporation
Audio Entertainment Group

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